Environmental Response, Compensation, and Liability Act, referred to as Superfund. 1981 Interagency task research plan. 1982 Congress passes laws to provide long-term, safe disposal of nuclear waste from power

CLEAN LAND

Our society makes, consumes and disposes of chemicals and waste products in huge quantities. Since 1945, the amount of waste generated in the U.S. has multiplied more than 500 times, making waste management one of our most difficult and expensive environmental challenges. Swollen landfills, abandoned factories, leaking oil wells, and illegally dumped or improperly managed wastes and toxics present serious human health and environmental risks. Hazardous substances can migrate through the soil to where we work, live and play, and can contaminate the air we breathe and the water we drink.

For generations, few people thought twice about burying and dumping garbage or wastes. "Out of sight, out of mind" was the prevailing mindset. It wasn't until the frightening stories of contamination, illness and death in places like Love Canal, New York, the Valley of the Drums, Kentucky, and Bhopal, India in the 1970s and 1980s that decisive actions were taken.

Responding to increased awareness and public demand, Congress passed laws that EPA uses to protect our land from hazardous materials. The passage of the Resource Conservation and Recovery Act (RCRA) in 1976 enabled the tracking of hazardous materials from production to disposal. Superfund was established in 1980 to clean up the nation's worst hazardous waste sites. Furthermore, citizens must now be kept informed about the presence and potential danger of toxic materials in their communities.

Resource Conservation and Recovery Act

RCRA mandates a comprehensive, life-cycle approach to regulating hazardous wastes from "cradle to grave." RCRA defines hazardous wastes as those which are ignitable, corrosive, reactive (explosive) and toxic. EPA and states set standards for how much waste facilities can have and what they have to do to manage or transport it, and outline permit requirements for waste treatment, storage and disposal. EPA's efforts under RCRA focus primarily on three basic elements: prevention, safe waste management and corrective action.

Prevention is EPA's strategy of first choice for hazardous wastes because it focuses on preventing pollution at the source, before waste is generated. This minimizes the load on disposal facilities by diverting wastes from traditional waste streams. Region 8 and the states provide education, technical assistance and outreach to industry, promote waste exchanges and networks, and assist small businesses in reducing the volumes of waste generated. Waste minimization has also been incorporated into enforcement actions where penalties are reduced or negotiated to include waste minimization projects. Pollution prevention and waste minimization opportunities are also evaluated and promoted during hazardous waste inspections.

The safe management of hazardous waste, particularly by having appropriate controls in place for all facilities that manage hazardous materials, has always been the center of the RCRA program. EPA's national goal is to

force reports that acid rain is intensifying in the Northeastern U.S. and Canada and outlines a 10-year global plants and weapon production. 1984 Union Carbide plant accident in Bhopal, India, releases methyl

have 90% of all required permits issued by 2005, with an interim goal of 62% by 1999. Region 8 expects to meet the 90% goal before 2005, and has exceeded the 1999 interim goal by having approved controls in place for 65% of facilities that need them.

Corrective action, or cleanup of contamination at the worst waste management facilities, has become the RCRA program's top priority. EPA has set goals of controlling human risk and groundwater contamination at these high-priority facilities. By 2005, 90% of the high-priority facilities must have all current human risks under control and 75% of current groundwater releases under control. The 1999 interim goals are 20% and 10%, respectively. Region 8 has identified 55 facilities on the national list, and is currently ahead of the pace for the interim national goals, with 40% of these facilities meeting the human risk indicator and 33% achieving the groundwater measure. Region 8 is working with the states to assure achievement of the 2005 goals.

Superfund: Faster, More Effective Cleanups

Where RCRA addresses operating facilities, Superfund is EPA's program to clean up sites where serious hazardous wastes and contamination have been left behind. Sites requiring large-scale, long-term and often big-ticket cleanups are known as "remedial" sites. These include most of the 1,300 sites on the National Priorities List (NPL). To date, Region 8 has placed 45 sites on the NPL and proposed seven others. "Removal" sites, in comparison, are typically smaller-scale, shorter-term cleanups, ranging from a few months to a few years.

Remedial program

Congress created the NPL anticipating that the whole Superfund program would encompass just a few hundred sites. Congress also intended that those who caused the contamination would pay their fair share to clean up the site.

Reality was more complicated. Many sites required extensive engineering and/or scientific studies before cleanup could begin. Also, many of the cleanup technologies that are standard today were developed as Superfund grew up. And not surprisingly, few parties responsible for contamination agreed to assume the costs.

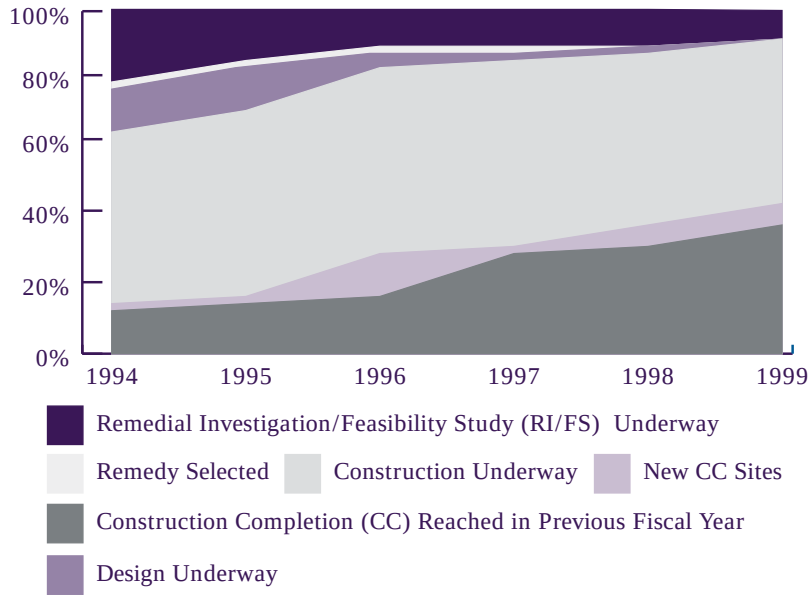
Summitville Mine Site, Colorado. In 1992, EPA stepped in to restore an ecological tragedy: leaking cyanide, acid and metal-laden mine waters killed 17 miles of the Alamosa River. In taking over the infamous Summitville, CO NPL site, EPA has directed cleanup activities such as capping the cyanide heap leach pad, plugging mine adits, constructing a 90-million-gallon wastewater holding pond and revegetating disturbed land. Water quality downstream has improved considerably, with local residents reporting signs of life returning to the river.

In response, the Superfund law has been fine-tuned many times. Over time, Congress expanded EPA's enforcement and cleanup authority and has significantly accelerated the pace of the program. Recent administrative reforms have also produced a faster, fairer and more efficient cleanup program. In Region 8, more Superfund sites have been cleaned up in the past six years than in all previous years of the program combined. At the end of 1999, construction activities had been completed at 18 NPL sites. Five of these sites have subsequently been removed from the list following completion of long-term cleanup activities.

Two major Denver sites, the Rocky Flats nuclear weapons plant and the Rocky Mountain Arsenal, are being restored quicker and at less cost due to EPA's innovative approaches. At Rocky Flats, the original 50-year, $22 billion cleanup plan has been reduced to 10 years and $12 billion. The Arsenal's $2 billion, 10-15-year cleanup plan has gained the support of the State of Colorado, the U.S. Army, Shell Oil, and the local community. Many of its 21 remedial actions are nearing completion, including the destruction of over 10 million gallons of hazardous liquids resulting from nerve gas production.

isocyanide, killing more than 2,000 people. 1985 Union Carbide plant at Institute, W. Va., releases methyl
British scientists report a giant "hole" in the ozone layer is opening up each spring over the Antarctic. 1986

Progress of National Priorities List Sites in Region 8



Federal Facilities

Region 8's portfolio of Superfund sites includes eight federally owned NPL sites. Cleanup efforts at these sites are transforming blighted areas into economically vital and productive ones. The Rocky Mountain Arsenal, for example, is now the largest urban wildlife refuge in the nation. The site is expected to contribute significantly to non-industrial development in Commerce City, CO. The city's mayor recently announced the first new residential housing project in 40 years.

EPA, through the Base Realignment and Closure (BRAC) process, is also working at five military installations in Region 8 to ensure that rapid and effective environmental restoration occurs as these sites close or are renovated.

Some big sites in Region 8 are being cleaned up without being on the final NPL. In 1998, Kennecott Utah Copper, state and local agencies, and EPA reached an agreement to clean up the largest open-pit mine in the U.S. Over $200 million has already been spent on the cleanup.

The Superfund program emphasizes restoring contaminated sites through partnerships with all stakeholders. Region 8 focuses on working with states, tribes and local governments to bring local solutions to sites, while understanding that public involvement is critical to the process. Without stakeholder support and understanding, no project will satisfy the needs of the community it's designed to protect.

Removal Program

The highest priority of the Superfund program is to make sites safe for those living or working nearby. The removal program delivers a quick response to immediate threats posed by the release of hazardous substances. Typical situations include fires or explosions, a contaminated drinking water supply, and threats to humans from exposure to hazardous substances. Most situations are emergencies where EPA teams up with other government agencies rapidly.

Region 8 receives over 900 hazardous substance release notifications a year, but most do not require federal removal action. Private parties are increasingly willing to clean up releases in the interest of maintaining a positive corporate image. Since the mid-1980s, EPA has funded between 30-50 of these shorter-term cleanups annually, at a cost of anywhere from $30,000 to $3 million each. Region 8 has completed over 200 removals to date.

Site Redevelopment

Whenever possible, the Superfund program looks for opportunities to return sites to local municipalities or business interests for possible redevelopment. For example, a portion of the Denver, CO Radium Superfund site has been cleaned up and is now home to a thriving Home Depot store. Another example is the Anaconda Smelter Superfund site in Montana, which has been transformed into a golf course with hiking trails and plans for future commercial and residential development.

isocyanate, bringing home the concept that communities in the U.S. could be at risk from chemical releases. Congress increases Superfund to $8.5 billion, creates mechanisms to speed cleanups. Reactor explodes at the